

# THE MINERAL INDUSTRY OF KYRGYZSTAN

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In 1997, Kyrgyzstan reported a 10.4% growth in gross domestic product and a 46.8% increase in industrial output compared with those of 1996 (Interfax Statistical Report, 1998a). A significant factor in Kyrgyzstan's economic success in 1997 was the dramatic increase in gold production, which totaled 17.4 metric tons (t) in 1997 compared with 1.5 t in 1996. The value of output also rose by 44.9% in the fuel sector and by 16.3% in the construction materials sector (Interfax Mining and Metals Report, 1998b; Interfax Statistical Report, 1998b).

Kyrgyzstan's mineral industry was involved in both mining and processing mineral products, mining primarily antimony, coal, gold, mercury, molybdenum, tin, tungsten, and uranium. Its metallurgical industry led the former Soviet Union (FSU) in the production of two nonferrous metals, mercury and antimony, as well as rare-earth metals. Several major gold deposits were under development. Although Kyrgyzstan produced coal and some gas and oil, it was significantly dependent on imported energy.

According to a presidential decree, at the beginning of 1997, Kyrgyzstan engaged in a reorganization of its oil and gas industry, merging the three existing companies into a national gas and oil products State joint-stock company Kyrgyzazmunayzat (Kyrgyz Gas and Oil Products). The new company merged the companies Kyrgyzgas (Kyrgyz Gas), Chugazmunayzat (Chuy Gas and Oil Products), and Kyrgyzmunayzat (Kyrgyz Oil Products) (Slovo Kyrgyzstana, 1997).

In February, 1993, Kyrgyzstan issued a decree uniting all mining enterprises into the State concern Kyrgyzaltyn. Although some of the enterprises were either scheduled for privatization or were privatized, Kyrgyzaltyn was still the country's largest mining enterprise, producing antimony, antimony oxide, gold, metallic mercury, molybdenum, rare earths, semiconductor-grade silicon, tin, tungsten, and uranium oxide.

Kyrgyzaltyn, despite having spun off a number of key enterprises, in 1997 accounted for 19.3% of the country's gross industrial output and 31.8% of its exports. The concern recently stepped up geologic work, enlisting western support. Kyrgyzaltyn is involved in several joint ventures with western companies. It is currently concentrating its efforts on gold production, although in the past it controlled such enterprises as the Khaydarkan mercury plant (Osh region), the FSU's largest producer of mercury; the Kyrgyz Chemical and Metallurgical plant (Chu region), which produces rare-earth metals and their compounds; and the Kara Balta uranium mining and processing complex that now also includes a gold refinery. Kyrgyzaltyn relinquished its control of the Kara Balta complex at the beginning of 1997, and of both the Kyrgyz Chemical and Metallurgical plant and the Khaydarkan mercury plant in July (Interfax Mining and Metals Report, 1997b).

In 1997, Kyrgyzaltyn retained control of the Kadamzhay antimony plant in the Osh region, the FSU's largest producer of metallic antimony and its compounds. Through November, the plant's output decreased by 12.5% compared with that of 1996, primarily because of a 24% drop in raw material supplies from Yakutia in Russia and from Tajikistan (Interfax Mining and Metals Report, 1997b). In 1997, the plant produced 4,400 t of a targeted 7,600 t of antimony and its compounds, of which 1,200 t was produced from raw materials from Kyrgyzstan, 1,200 t from concentrate supplied by Tajikistan, 500 t from concentrate supplied by Yakutia in Russia, and the remainder from unspecified sources. More than one quarter of the plant's output was achieved with its own raw materials owing to the domestic development of the Tereksay and Kadamzhay antimony deposits. Despite a 20%-reduction in unit costs over the last 2 years, Kadamzhay's commodities were still finding it difficult to compete on the market. Costs were cut mainly by saving electricity, gas, and heat and by trimming staff. In 1998, the plant planned to produce 6,000 t of antimony (Interfax Mining and Metals Report, 1998a).

In 1997, Kyrgyzaltyn's most successful operation was the Kumtor Gold Company joint venture with Canada's Cameco, which is developing the Kumtor gold lode on the northwestern slopes of the Akshirak mountain ridge in the Tien-Shan mountain range (Interfax Mining and Metals Report, 1997a). In 1997, Kumtor produced 16.1 t of gold which was 3 t more than planned, with output in 1998 targeted at 18 t. Kyrgyzstan owned two-thirds of the gold produced by the joint venture, and Cameco, the rest. The Kumtor mine was commissioned in December, 1996 (Interfax Mining and Metals Report, 1998b).

Kyrgyzstan agreed to measures to extend the life of the Makmalzoloto gold mining enterprise, a division of the State-owned mining concern Kyrgyzaltyn, until the year 2003. Commercial ores at the open pit in the Dzhahal Abad region were nearing depletion. Kyrgyzaltyn said the open pit possessed only enough prepared ore for another 2 years of operation. The country's Geology Committee, however, said that there were still 2.3 million metric tons (Mt) of commercial ore graded at 4.94 grams per metric ton (g/t) of gold in deeper lodes and 1.4 Mt of marginal ore graded at 1.51 g/t. In addition, some 3.35 Mt of waste graded at 1.7 g/t had been stockpiled. According to a Government plan, these ores should be worked. Makmalzoloto was to acquire certain tax incentives to attract outside investors. The government ordered Kyrgyzaltyn to start preparing to develop underground mining and heap leaching for the tailings as of January 1, 1998, and to present a final feasibility study, which takes environmental considerations into account by May 1998. Kyrgyzaltyn also was to substantiate proposals to develop the

related Vostochny and Dioritovy sections of the Makmal field, 12 kilometers from the main site. At deep levels, Vostochny contains 1.84 Mt of ore graded at 5.56 g/t, and Dioritovy contains 490,000 t graded at 8.57 g/t. Kyrgyzaltyn forecast that Makmalzoloto would finish 1997 with an output valued at 228 million som [about \$13 million (1997 average exchange rate was \$1 to 17.37 som)], which would be 19.3% lower than that of 1996 (Interfax Mining and Metals Report, 1997a).

Kyrgyzaltyn saw its future mainly in gold. It and foreign companies were jointly prospecting an overall area of 14,740 square kilometers (km<sup>2</sup>); the concern has covered 15,160 km<sup>2</sup> since 1995 (accounting for geologic work in 1997). It was partner to four joint geologic ventures. One was Solton Sary, formed in June 1996 and 50%-owned by Newmont Mining Corp. of the United States, which succeeded Santa Fe Pacific Gold of the United States as the partner. The venture was studying gold deposits in the 330-km<sup>2</sup> Solton Sary and the 2,000-km<sup>2</sup> Karakala areas in Naryn region. A second was the Tien Shan Gold Company, formed in July 1996 with Cameco and holding the license to study the 650-km<sup>2</sup> Bulakash and the 1,760-km<sup>2</sup> Akdzhola areas. Even before this joint venture was formed, the partners prospected the Tokhtazan deposit in the Akdzhola area. A third was the Tien Shan Minerals Company, formed in June 1997 and half-owned by America's Phelps Dodge. It was studying the 9,200-km<sup>2</sup> Shakhimardan-Koksui area in the Osh region, southern Kyrgyzstan. The fourth was the Kichi Sandyk project, launched in September 1997, in the Dzhalal Abad region in western Kyrgyzstan. First results reportedly confirmed information obtained in previous years that the region hosts a gold deposit containing at least 30 t of metal. The Kichi Sandyk project was being developed in conjunction with the Metals Mining Agency of Japan and the Japanese International Cooperation Agency. Furthermore, Kyrgyzaltyn was seeking a partner to mine the Jerooy gold lode in the Talass district, with reported proven reserves of more than 70 t of gold (Interfax Mining and Metals Report, 1997b).

Plans called for privatizing the Khaydarkan mercury plant by the middle of May 1998. The Kyrgyzstan Government listed the Khaydarkan plant as a strategic enterprise in which it will retain majority interest after privatization. The State Property Fund was considering selling some Government shares, mainly to foreign investors. For example, it was willing to offer up to 25% of these shares to the Moscow-based international consortium, Molibden, which specialized in nonferrous metals processing, especially mercury and its compounds, and which produced high-grade antimony. The Khaydarkan plant produced 611 t of mercury in 1997 compared with 584 t in 1996 and 380 t in 1995. All mercury produced in 1997 was exported—of which 411 t went to China; 100 t to the Netherlands; and 50 t to Russia and other Commonwealth of Independent States (CIS) nations and 50 t to the United States (Interfax Mining and Metals Report, 1998d).

In 1997, Khaydarkan also produced 4,176 t of fluorspar concentrate graded at 95%; it bartered 3,000 t with a company in Russia called Ftoral in exchange for aluminum wire. Khaydarkan produced about 3,000 t of fluorspar concentrate in 1996, and targeted production for 5,500 t in 1998 (Interfax Mining and Metals Report, 1998d).

In 1997, Khaydarkan produced 160 t of antimony in

concentrate compared with 221 t in 1996. All antimony was sold to the Kadamzhay antimony plant, the Khaydarkan plant's biggest consumer of this commodity. Khaydarkan forecast a surge in antimony ore production in coming years as it develops rich ore bodies in the western section of the Khaydarkan mercury deposit (Interfax Mining and Metals Report, 1998d).

The Kyrgyz Chemical and Metallurgical plant, a rare earth metals producer that had been insolvent, posted first-quarter 1998 net profits of 2.5 million som (about \$144,000), which covered the losses of recent years. The facility spun off social infrastructure, which had been incurring annual losses of 1.5 million som. It produces 16 rare-earth metals (the whole group of lanthanides) plus 16 rare metals. It was introducing new technology to produce europium oxide, and had started to produce chemically cooled europium compounds. It was working on a project to increase the diameter of polycrystalline silicon to 20-25 millimeters; production of silicon plates temporarily had stopped owing to lack of demand. Overall sales in 1997 rose by \$1.5 million as the number of consumers doubled. The facility tolled raw materials and shipped 98% of its output to countries outside the CIS and 2% to Russia. The Kyrgyz Government, which was seeking a strategic investor as stipulated by a program to denationalize and privatize it, owned 70.06% of the facility (Interfax Mining and Metals Report, 1998c).

Kyrgyzstan's economy has benefited greatly from gold production. The country had become the third largest gold-producer in the FSU. Thus, the future of much of Kyrgyzstan's mineral development, as well as the country's immediate economic prospects, seem to be linked directly with the future of the world gold industry.

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## Major Sources of Information

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TABLE 1  
KYRGYZSTAN: PRODUCTION OF MINERAL COMMODITIES 1/

(Metric tons unless otherwise specified)

Commodity	1993	1994	1995	1996	1997
Antimony: e/					
Mine output, Sb content	1,600	1,600 r/	1,600 r/	1,400	1,200 2/
Metal	11,000	9,000	9,000	5,000 r/	4,400 2/
Cement	700,000	400,000	310,000	544,000 r/	658,000
Coal	1,700,000	800,000	474,000	400,000	500,000
Fluorspar concentrate	850 e/	834	850	3,000 r/ e/	4,176
Gold e/ kilograms	1,500	2,050	1,500 r/	1,500 2/ r/	17,400 2/
Mercury:					
Mine output, Hg content e/	300	300	300	500	550
Metal	330 r/	379	380	584 r/	611
Natural gas million cubic meters	40	40	36	26 r/	24
Petroleum, crude	100,000	85,900	88,500	84,300 r/	85,000

e/ Estimated. r/ Revised.

1/ Based on information available through June 1998.

2/ Reported figure.

TABLE 2  
KYRGYZSTAN: STRUCTURE OF THE MINERAL INDUSTRY IN 1997

(Metric tons unless otherwise specified)

Commodity	Major operating companies	Location of main facilities	Annual capacity e/
Antimony:			
Metal content of ore	Kadamzhay and Khaydarkan complexes	Kadamzhay, Khaydarkan regions	2,400.
Metal	Kadamzhay metallurgical complex	Kadamzhay region	20,000.
Coal	7 underground mines, 5 open pits	Southwestern, central, and northeastern parts of country	2,200,000.
Cement	Kantskiy cement plant	Kant	1,500,000.
Fluorspar	Khaydarkan mining and metallurgical complex	Khaydarkan deposit	3,000 (fluorspar concentrate).
Gold	Makmalzoloto	Makmal deposit	5
Do.	Kumtor Gold Company	Kumtor deposit	19
Do.	Solton-Sary mine	Naryn region	NA.
Mercury:			
Metal content of ore	Khaydarkan mining and metallurgical complex	Khaydarkan deposit	700.
Metal	do.	Khaydarkan	1,000.
Petroleum and natural gas million cubic meters	Kyrgyzazmunayzat	Approximately 300 wells; major deposits include Changyr-Tashskoye, Izbaskentskoye, Mayli-Suyskoye, Chigirchikskoye, Karagachskoye, Togap-Beshkentskoye, Susaskoye	150,000 (petroleum). 100 (natural gas).
Rare earths	Kyrgyz mining complex	Aktyuz deposit	NA.
Do.	Kyrgyz Chemical and Metallurgical plant	Orlovka	NA.
Uranium	Kara Balta complex	Mines in Min Kush in central, Kadji-Say in eastern, and Tyuamuyin in southern Kyrgyzstan, processing plant in Chui region	NA.

e/ Estimated. NA Not available.